

TIME-RESOLVED MEASUREMENT TECHNIQUE USING RADIATION PULSES

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ABSTRACT OF THE DISCLOSURE

[0055] In one embodiment, a probe pulse is first stretched into a pulse of longer duration. The probe pulse comprises a plurality of wavelength components in a bandwidth, so that each temporal portion of the converted pulse corresponds to and comprises one of the wavelength components. This converted pulse is supplied to the sample at the time when it is affected by the disturbance of the sample caused by a pump pulse. Changes in characteristics of the sample at the wavelength components of the temporal portions of the converted pulse are then detected after the converted pulse has been modified by the sample. Such changes are then analyzed to derive characteristics of the sample. In another embodiment, a converter passes to a detector radiation from a probe beam that has been modified by the sample during a temporal sequence of time intervals, where the time intervals correspond to displacement in a spatial record. The radiation passed comprises radiation from the probe beam when it is affected by the disturbance in the sample caused by a pump pulse. The output of the detector is then analyzed to determine the characteristics of the sample.